**I Claim:**

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21. A method for the nondestructive measurement of the thickness of thin layers, comprising the steps of

using a probe having a first coil device on an inner core, the geometrical center of which first coil device and the geometrical center of at least a second coil device coincide, the at least the at least second coil device partially surrounding the first coil device,

using an evaluation unit, to which signals of the first and second coil devices are emitted during a measurement for ascertaining layer thickness, and

using a circuit by which the first and the at least second coil devices are excited sequentially during a measurement.

22. (Amended) The method according to claim 21, wherein the first and the at least second coil devices are excited with high frequency.

23. The method according to claim 21, further comprising limiting by transistors frequency signals coming from the first and the at least second coil devices that are emitted at separate times from one another, by the period for the emission of the frequency signals of each coil device.

24. The method according to claim 23, wherein the transistors are activated by a circuit in analogy with the first and the at least second coil devices.

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25. The method according to claim 21, wherein signals emitted by the first and at least second coil devices are unequivocally assigned to a respective coil device and evaluated independently of one another by a series oscillating circuit.

26. The method according to claim 21, wherein the first and the at least second coil devices are excited with the same frequency.

27. The method according to claim 21, wherein the first coil device is excited with a frequency between 8 and 20 MHz, and the at least second coil device is excited with a frequency between 4 and 12 MHz.

28. The method according to claim 21, wherein oscillations of the first and the at least second coil devices of the measuring field that is changing during the measurement are interrogated at least twice per second.

29. The method according to claim 21, wherein the first coil device has a circuit and the at least second coil device has a circuit, which are connected parallel to each other, and a flip-flop circuit is provided, by which the transistor respectively assigned to the first and the at least coil devices is switched time-dependently.

30. The method according to claim 21, wherein frequency signals emitted by the first and the at least second coil devices are passed to the evaluation unit via a compensator.

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31. An apparatus, comprising a housing,

a first coil device

a second coil device

a hemispherical placement dome,

a probe head with a ferritic cup-type core that receives the first coil device close to a common geometrical axis, the cup-type core having in the common geometrical axis a pin that lies within the first coil device and on the end face of which the hemispherical placement dome, which projects at least partially from the end face of the coil device, is provided, and at least one second coil device is provided concentrically outside the cup-type core.

32. The apparatus according to claim 31, wherein the number of turns of the first coil device is equal to or less than that of the second coil device.

33. The apparatus according to claim 31, wherein the first and the at least one second coil devices are arranged fixedly in relation to each other.

34. The apparatus according to claim 33, wherein the first and the at least one second coil devices and are embedded in a casting composition.

35. The apparatus according to claim 31, wherein the first and the at least one second coil devices are arranged in one plane with respect to the end face of the probe head.

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36. The apparatus according to claim 31, wherein the cup-type core has at least one lateral slit for leading through connection lines.

37. The apparatus according to claim 31, wherein the probe head is mounted such that it can be axially displaced in a guide sleeve and retracted with respect to a protective sleeve arranged fixedly in relation to the guide sleeve.

38. The apparatus according to claim 37, wherein the protective sleeve has a recess on an end face pointing towards the probe head.

39. The apparatus according to claim 37, wherein the recess is prismatically formed.

40. The apparatus according to claim 37, wherein the probe head is retractable into the protective sleeve against a spring force, and a spring element is arranged with at least slight biasing with respect to the guide sleeve.

41. The apparatus according to claim 31, wherein the first coil device is designed such that it is sensitive to layer thicknesses and the at least one second coil device is designed such that it is sensitive to curvature.

42. A circuit for separate evaluation of two measuring signals, for carrying out a method for the nondestructive measurement of the thickness of thin layers comprising the steps of using a probe having a first coil device on an inner core, the geometrical center of which coil device and the geometrical center of

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at least a second coil device coincide, the at least second coil device partially surrounding the first coil device,

using an evaluation unit, to which signals of the first and the at least one second coil devices are emitted during a measurement for ascertaining the layer thickness,

using a circuit by which the first and the at least one second coil devices are excited sequentially during a measurement,

wherein detuning of a respective inductance results in a change in frequency, one inductance being influenced primarily by the layer thickness and the other inductance being influenced primarily by the curvature of the object of measurement.

43. The circuit according to claim 42, wherein the two inductances have a common earth and the frequency can be coupled out at a switching point in unequivocal assignment to the corresponding frequency signal.